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| EXAMINER | |
|---|---|
| SYED, NABIL H | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2612 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/507,538 | KUNKAT ET AL. | |
| | Examiner | Art Unit | |
| | /NABIL H. SYED/ | 2612 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *12 April 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-9 and 11-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9 and 11-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. The following is a non-final office action in response to the RCE filed 4/12/10. Amendments received on 4/12/10 have been entered. Claims 1-9 and 11-19 are pending.

### Drawings

2. The drawings are objected to because conventional features illustrated in the drawing as rectangular boxes need to be labeled for understanding in this application. See 37 CFR 1.83(a). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

PCT rule 11.11 states "... in the case of electrical circuits or block schematic or flow sheet diagrams, a few short catchwords indispensable for understanding" are required. Labels are required on the boxes since they make the drawings and the claim language easier to, read and understand the applicant's invention.

**Claim Rejections - 35 USC § 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-9 and 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Strong et al., Bonneau et al., Kang, Applicant Admitted Prior Art (AAPA) and further in view of Wesby (5,051,741).

Referring to claims 1, 5, 9, 14 and 19, Strong teaches a system, as shown in Fig. 2, comprising a local positioning system (LPS), which includes a plurality of interrogators 6 (i.e., communication stations) coupled to a plurality of antennas 5 that communicate with each other and with tags 2 (i.e., transponders) (see Sections [0045]-[0046], and [0054]-[0055]). Per Strong, interrogator 6 communicates with tags 2 using spread-spectrum (i.e., an interrogator-tag protocol) (see Section [0096]); thus interrogator 6 must include a first protocol-executing means. Strong further teaches that

interrogators 6 are directly connected to an Ethernet local area network (LAN) and communicate with each other over the LAN using the Ethernet protocol (i.e., an interrogator-interrogator protocol) (see Sections [0047] and [0054]-[0055]); thus interrogator 6 must also include a second protocol-executing means. Though not expressly taught, Strong's interrogator 6 must have an integrated circuit and comprising at least (1) a radio frequency (RF) transmitter and receiver (or an RF transceiver) and a microprocessor that form a first protocol-executing means in order to communicate with tags 2 via spread-spectrum and (2) an Ethernet interface (i.e., a second protocol-executing means) in order to communicate with other interrogators 6 via the LAN. Strong further discloses that the interrogator communicate with other interrogators and tag wirelessly (via interrogator A communicating wirelessly with interrogator B and a tag; see fig. 7). Strong teaches that interrogator 6 generates a 2.4 GHz field (i.e., an energy-supply signal) to power tags 2 over the air each time the interrogation starts, hence the tags are passive transponders and it is well known that passive transponders do not have any battery or power source and they generate their energy from the received interrogation signal (i.e., the interrogator-tag protocol begins) (see Sections [0096]-[0097]). Strong further discloses that the transponder can be passive, no battery, modulated backscatter tags (see paragraph [0055]).

Even though The Examiner believes that Strong teaches that a reader communication unit is able to communicate with a tag unit and further communicate with another reader unit (via 802.11b access point 3 communicating with tag 2 and another 802.11b mobile device; see fig. 2) using a processor MAC and Strong further discloses

that the elements of the reader communication unit 3 can be duplicated via making a separate receiving unit for tag protocol (see paragraph [0141]). Even though the description is not fully explained but one of ordinary skill in the art would be able to realize that Strong does include first signal processing means and second signal processing means.

In order to further support the Examiners point of view, Bonneau discloses a communication station (via smart card communication device (SCCD) 104); see fig. 2; also see col. 67, lines 50-67) comprising a RF circuit 214, DSP 210 and DSP EEPROM 30. Bonneau discloses that RF circuit 214 and DSP 210 perform modulation and demodulation using the International Organization for Standardization (ISO) Type A smart card communication protocol (i.e., at least one transmission parameter) or the ISO Type B smart card communication protocol (i.e., at least one other transmission parameter) to enable communication between SCCD 104 and a Type A or B smart card 106 (see Col. 2, lines 17-37; Col. 7, lines 1-13; Col. 9, lines 39-45; Col. 10, lines 14-23 and 25-38; Col. 12, lines 51-67; Col. 13, lines 1-22, 36-38, and 46-67; and Col. 14, lines 1-57); thus Bonneau's RF circuit 214 and DSP 210 form (a) a first signal-processing means that processes signals and enables signals to be processed when SCCS 104 communicates with a device having one type of protocol (b) a second signal-processing means that processes other signals and enables other signals to be processed using at least one other transmission parameter when SCCS 104 communicates with a other device having a different communication protocol. Bonneau discloses a transmission means connected to the first and second signal processing means to transmit and

receive signals from different devices having different protocols (via antenna assembly 216; see fig. 2). Bonneau teaches that RF circuit 214 and DSP 210's first encoding means process signals according to a 100% Modified Miller modulation scheme when transmitting signals to the Type A smart card (see col. 12, lines 53-56), which uses a Miller coding system and the first decoding means process signal according to an ASK-Manchester modulation scheme, which uses a Manchester coding system (see col. 2, lines 30-33; col. 12, lines 51-67; col. 13, lines 1-5 and 46-47; and col. 14, lines 1-24)

Bonneau further discloses that the Type B smart card communication protocol, uses a Non-Return-to Zero modulation with a subcarrier at 847.5 kHz, hence it would have been obvious to one of ordinary skill to use Non-return to Zero technique to code and decode signals for station-station communication since the NRZ code requires only half the bandwidth required by the Manchester code.

From the teaching of Bonneau it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the interrogator of Strong to include two signal processing means to process the signals received from first protocol executing means and second protocol executing means as taught by Bonneau in order to improve the interrogators so they can communicate with devices having different communication protocols through a single port (see col. 4, lines 37-39 and col. 2, lines 65-67).

The combination of Strong and Bonneau discloses a system wherein multiple interrogators transmit signals to other interrogators and to multiple transponder using

their antennas, but fails to explicitly disclose that the transmitting means includes a transmission coil to transmit and receive different signals.

Kang disclose a radio frequency system including a reader (communication station) to which includes and transmission means including a transmission coil (via antenna coil 160; see fig. 1) to transmit and receive different signals (see paragraph [0010]). Kang further discloses that the transmitted carrier signal from the reader10 is converted DC power of a tag 20 by a power generating circuit of the card 20, hence the tag is passive tag and it generates power from the received carrier signal.

From the teaching of Kang it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Strong and Bonneau to include a transmission coil in the transmitting means as taught by Kang since by adding additional conducting rods or coils and varying their length, spacing, and orientation, an antenna with specific desired properties can be created. Further it is well known in the art of the antennas that an antenna is an arrangement of one or more conductors called elements, such as rods or coils.

However the combination of Strong, Bonneau, and Kang fails to explicitly disclose, communication process takes place simultaneously between the communication station and the at least one transponder and between the communication station and the at least one further communication station.

Wesby discloses a communication system, in which a communication station (master station 30) communicates with other communication stations (via communication station 40) and master station 40 further communicates with

transponder 50 (see fig. 1). Wesby further discloses that master station uses a frequency F2 (second protocol) when communicating with the other communication station (see fig. 1) and master station uses a frequency F1 (first protocol) when communicating with the transponder (see fig. 1). Wesby further discloses that the communication takes place simultaneously on three buses since they are on different frequency (see col. 8, lines 40-44). Note: the claim language does not specify "protocol", the Examiner is interpreting that when the master station uses frequency F2, it is communicating using the first protocol and when master station uses frequency F1 it is communicating using different protocol.

Further with respect to the limitation regarding the inductive coupling, the AAPR discloses that the communication station of the kind used in the present application is known in art, and it is explained that a communication station is able to communicate with transponders and with further communication stations by electromagnetic means (see specification, page 1, lines 8-14). Strong further discloses that the wireless communication system of Strong can be operated using radio frequency signals, or electromagnetic signals (see paragraph [0042]).

Strong contains an interrogator that communicates with other interrogators and responders. Wesby contains an interrogator that simultaneously communicates with other interrogators and tags. Wesby's known improvement could have been applied in the same way to the interrogator of the Strong and the result would have been predictable. Therefore the claimed subject matter would have obvious to a person having ordinary skill in the art at the time the invention was made.

Regarding claims 2, 6, 12, 13, 16 and 17, Strong teaches that interrogator 6 generates a 2.4 GHz field (i.e., an energy-supply signal) to power tags 2 over the air each time the interrogation starts (i.e., the interrogator-tag protocol begins) (see Sections [0096]-[0097]). Strong also teaches that interrogators 6 communicate with each other over an Ethernet LAN (see Section [0047]). Though Strong fails to expressly teach that interrogator 6's second protocol-executing means having a synchronizing signal generating means generating a synchronizing signal each time the interrogator-interrogator protocol starts, a message or frame generated by interrogator 6 includes an eight-byte preamble that enables a receiving interrogator 6 to lock onto the transmitting interrogator 6's timing on a frame-by-frame basis; thus the preamble functions as a synchronization signal, and interrogator 6's second protocol-executing means must have a synchronizing signal generating means. Though not expressly taught, Strong's interrogator 6 must have an integrated circuit and comprising at least (1) a radio frequency (RF) transmitter and receiver (or an RF transceiver) and a microprocessor that form a first protocol-executing means in order to communicate with tags 2 via spread-spectrum and (2) an Ethernet interface (i.e., a second protocol-executing means) in order to communicate with other interrogators 6 via the LAN.

Regarding claims 3 and 7, because Ethernet devices only transmit when there is information to be transferred instead of transmitting continuously, as required by some network protocols, Strong's interrogators 6 conserve power by transmitting to other interrogators 6 only when necessary.

Regarding claims 4 and 8, Strong teaches that interrogator 6's first protocol-executing means handles a interrogator-tag protocol that communicates with a plurality of tags 2 (see Fig. 2 and Sections [0045] and [0055]-[0056]). In addition, Strong teaches that a master interrogator 6 sends a "turn on" command to a slave interrogator 6 seven milliseconds early (i.e., as early as possible) to compensate for a seven-millisecond delay between the master and slave interrogators 6 (see Section [0055]).

Regarding claims 11 and 15, Strong teaches that the LPS tags are considered RFID tags (see section [41], lines 19-20).

5. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Strong in view of Bonneau in view of Kang and further in view of Balasubramanian et al. (5,610,947).

As of claim 18, the combination of Strong, Bonneau and Kang discloses all the limitations of the claimed invention as mentioned in claim 1 above but fails to explicitly disclose a processing means configured to code and decode the signals using the FM zero code.

Balasubramanian discloses a processor (via a FM/Flash MODEM; see fig. 2 and 3) which modulates and demodulate (encoding and decoding) the data using the FM zero coding (see fig. 1; also see col. 3, lines 54-60; also see col. 5, lines 30-37).

From the teaching of Balasubramanian it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the combination of Strong and Bonneau to use the FM zero coding as taught by Balasubramanian since different encoding and decoding techniques such as NRZ, FM zero, FM1, Manchester

are used in communication systems and can be switched with each other based on the system requirement.

**Response to Arguments**

6. Applicant's arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to /NABIL H. SYED/ whose telephone number is (571)270-3028. The examiner can normally be reached on M-F 7:30-5:00 alt Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman can be reached on (571)272-3059. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NABIL H SYED/
Examiner
Art Unit 2612

N.S

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Supervisory Patent Examiner, Art Unit 2612